INTERNATIONAL INSTITUTE OF AGRICULTURE

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MISCELLANEOUS PUBLICATIONS

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The International Institute of Agriculture

Its Labors in Behalf of Economic Betterment

(From the *Corriere della Sera*, Milan, Nov. 7, 1910).

The Single Numerical Statement as a Factor in price Formation.

(The Statistical Service of the International Institute of Agriculture).

For some months past the International Institute of Agriculture affords evidence of a new and valuable activity; and this period coincides with the date when the President, Marchese Cappelli, infused new blood into the Institute by renewing the staff. Under the wise guidance of the new Secretary General, Prof. Jannaccone, admirably seconded by Prof. Lorenzoni, Director of the Service of Economic and Social Intelligence (agricultural organizations, co-operation, etc.), and by Prof. Ricci, Head of the Statistical Service, the Institute has begun to be what its founders intended it should become, i. e. a vital and active organism in the agricultural life of the world.

In order to show the really brilliant success obtained by the new Secretary General I should have to deal with several publications which have been issued during the last few months by the Institute; with the Catalogue of the Library for 1909, most valuable to all who wish to have a systematic bibliography of the questions raised in the press and in books about agriculture; with the Inventory of areas and crops and live stock which saves the need

for laborious research into thousands of publications which are often inaccessible; with the Bulletin of Economic Intelligence, which contains a large volume of information on the co-operative movement and the legislation on agricultural association, edited by Prof. Lorenzoni, and which will be a valuable guide to all who wish to know what has been done and is being done in this field of activity; with the Bulletin of Agricultural Statistics, which, about the 20th of each month, publishes the latest news on the crops of the world. And I shall here restrict myself to dealing with this last mentioned Bulletin in as much as it materialises the most characteristic, and, in my opinion, the most practically valuable of the tasks which the International Institute of Agriculture has set itself.

When that strange man of genius, David Lubin, proposed to the King of Italy the foundation of the International Institute of Agriculture, he had in mind one main fixed idea: that of the « Single Numerical Statement ». Like an unquiet spirit he continued to invoke for several years the man capable of giving this Single Numerical Statement, and he has at last found him in Umberto Ricci, the new Head of the Statistical Service of the Institute. The day on which, in the July Bulletin, Umberto Ricci published the first of these Single Numerical Statements, must have been for David Lubin a day of rejoicing; and in a letter in which he announced it to the American Government and American readers, he referred to it as « a historical event ». Yet in July this « Single Numerical Statement » was very feeble, as it only referred to the data for six countries. In the October Bulletin it is already given for 20 countries, comprising all the principle States of the Northern hemisphere, as reproduced in this paper further on.

We must, indeed, admit, along with the ideator of the Institute, that this was a « historical event ». To realize its importance one must reflect on the enormous influence that the prices of agricultural products exercise on the prosperity of agriculture. It is not enough to produce well, or cheaply, in accordance with the latest technical improvements; it is equally necessary to sell well. The worst crises which agriculture has passed through have been crises not of production but of price. How many viticulturists in recent years have cursed the day and the hour on which they planted out their splendid vineyards, when, owing to their ignorance of the general condition of the markets of the world, owing

to the bad organization of the wine trade, and to the difficulty they have had in delaying the sale of their product, they have been compelled to sell for a mere song the grapes they had cultivated with so much care, so carefully defended against disease, and so anxiously watched over when menaced by meteorological causes.

The Influence of the Supply on the Price.

Now one of the principle reasons why the farmer sells badly is his ignorance of the conditions of the market. The isolated farmer can only guess at the price at which he is likely to sell his product by judging the situation in accordance with his own very limited means of observation. If he sees that his fields and those of his neighbours give promise of a more abundant harvest than that of the preceeding year, he will readily be led to generalize and to conclude that the harvest is everywhere abundant, and that the price will fall as compared with that of the previous year. He will consider himself fortunate if he can sell at a moderate price whereas, had he known the harvest conditions in other countries, he might perhaps have been able to obtain a better one. On the other hand, seeing that the harvest is a poor one in the district which comes under his observation, the isolated farmer may count on receiving a high price, and may at that time refuse to sell on conditions which he would have judged advantageous had he been acquainted with the status of the markets, and which, later on, he will regret having rejected.

He will frequently be taken in by information circulated by those who are interested in buying his produce at a low figure to sell it at a high one; he will lose in his transactions with the merchant more than the fair compensation for the work of these mediators between producer and consumer. These drawbacks could be avoided if the farmer, before selling his crops, could have a bird's eye view of the world's situation, since the world's supply, in reality, determines his price. As Ricci truly remarks, if the farmer could rise to a great height, and view the world through a telescope he would correct his first impressions. The higher he rose, the more powerful the lens, the vaster the territory he could take in at a glance, the nearer his judgement would approximate to the truth.

After viewing the supply in the principle producing countries he would have to draw a mental comparison between the situation in the different lands, he would have to consult statistics of past years, and at last he would be able to merge all his observations into one synthetic judgement: « The condition of the crops on the whole is better (or worse) and the harvest will probably be so much larger (or smaller) than last year ». If, then, by agreement this synthetic judgement receive the authority of convention he will be placed on a footing of equality with the merchant. The price then at which he will sell his products will not be very different from the basic price prevailing on the principle market centres.

The Single Numerical Statement.

The statistical bureau of the International Institute of Agriculture, under the direction of Ricci, aims at supplying the farmer with the means of forming such a synthetic opinion on the state of the world's crops, and this is supplied in the form of « the Single Numerical Statement ». What is the Single Numerical Statement? It is the reply to this enquiry: « is the supply of this year larger or smaller than last year's supply, and in what proportion? ». We know, for instance - and we learnt it from the agricultural statistics published by prof. Valenti - that the grain crop in Italy only amounted this year to 41,772,000 quintals, as against 51,699,000 quintals in 1909. Taking 100 as indicating last year's crop, the crop of 1910 would be represented proportionately by the figure 80.7, which is the Single Numerical Statement for Italy for 1910, indicating that this year's crop is only 80.7 percent of last year's, or, otherwise stated, that it is 19.3 per cent less than last year. Had the same state of things prevailed all over the world, the price of wheat ought to have risen to a formidable extent, for, in accordance with a well known law, a deficiency of one fifth in the supply of wheat occasions a rise in price of much more than one fifth, probably of one third, or even more. Instead of this we all know that the reverse has been the case; the price of wheat now fluctuates between 26 and 28 lire in Italy, whereas, at the same date last year, it varied from 28 to 30 lire. It is therefore

evident that the bad effects of the poor harvest in Italy have been compensated by abundant harvests in some foreign countries. But in what measure did this compensation take place? What are the true figures of the supply in the countries from which we import? What has been the demand in the countries where the harvest has failed? Hitherto all these enquiries have been answered by a few government offices and more especially by private parties: the Hungarian Ministry of Agriculture, the Argentine Ministry of Agriculture, Broomhall's Corn Trade News, Dornbusches Floating Cargoes' Evening List, etc., but their data are often collected on different systems, they refer to different units of measurement, they do not include all the producing countries, and we have no index to their reliability, even though they be the result of accurate enquiries. The very constitution of the International Institute of Agriculture makes it the natural centre for assembling all the crop-reporting information of the world, and for diffusing synthetic data, elaborated with scrupulous care and with the utmost respect for truth.

And this is the work it has been engaged on during the last few months. After obtaining, for the several countries, their « Single Numerical Statements » similar to the 80.7 for Italy, the Institute has begun to publish a Single Numerical Statement for all, or at least for the principle countries of the world. We are only at the beginning of the arduous undertaking, and many difficulties have already been overcome, many others remain to be got over, as at present not all the Governments send their data to the Institute, others do not send them in time, and for some the data are not now given in the required form. But the attempt is a daring one and marks out the path to be followed in the future, when the Governments will have come into line, will have modified, perfected and unified their agricultural statistical systems, and when the Single Numerical Statement of the Institute will become the real guide to the farmers of the whole world in the formation of the prices of their products.

Table by the International Institute of Agriculture giving the Single Numerical Statement for Twenty Countries.

NAME OF COUNTRY	TOTAL PRODUCTION		
	1909	1910	
		compared with 1909	Actual figures
Europe.	Quintals *	Percent	Quintals *
Prussia	22,647,920	105. 5	23,894,660
Bulgaria	8,728,681	153. 2	13,370,000
Denmark	1,026,190	106. 7	1,095,200
Spain	39,218,885	94. 9	37,233,594
France	97,752,200	73. 5	71,827,800
Great Britain	16,721,881	91. 3	15,260,700
Hungary (including Croatia and Slavonia)	34,266,393	157. 6	54,018,000
Italy	51,699,000	80. 7	41,732.000
Luxemburg	168,016	122. 5	205,867
Netherlands	1,119,472	105. 1	1,176,760
Roumania	16,022,536	188. 3	30,171,576
Russia in Europe	193,863,203	115. 4	223,663,200
Sweden	1,880,709	96. 3	1,812,000
Switzerland	971,000	95. 8	930,000
America.			
Canada	45,380,300	73. 6	33,416,600
United States	200,630.041	93. 8	188,268,740
Asia.			
British India	77,154,621	126. 0	97,189,055
Japan	6,054,962	99. 1	6,000,750
Russia in Asia	19,561,986	133. 3	26,076,000
Africa.			
Tunis	1,750,000	85. 7	1,500,000
Totals and averages (SINGLE NUMERICAL STATEMENT). . .	836,617,996	103. 9	868,842,502

* 1 Quintal = 220.46 lbs.

Surplus and Deficiency.

We see from the above table published in the Institute's Bulletin for October that there are four countries in which the scarcity of the supply would have caused a rise in price, had this failure not been compensated by an abundant harvest elsewhere; and these four are France where the harvest was only 73.5 % of that of 1909; Italy the Single Numerical Statement for which is 80.7, Canada in which it is 73.6, and the United States, with 93.8 of last year's supply. In this last country the percentage reduction in the supply was not very considerable, but as it is the second largest wheat producing country in the world, the deficit in absolute figures amounts to 12 million quintals. Fortunately the harvest was abundant elsewhere: in Russia in Europe the harvest rose from 193,863,000 quintals to 223,663,000, or 15.4 percent. In Russia in Asia the Single Numerical Statement rose to 133.3, indicating an increase in production of 33.3 %; in Hungary the Single Numerical Statement is 157.6, in Bulgaria 153.2, in Roumania 188.3, (and this was the greatest increase), in British India, 126.

Summarising the situation there was an increase from 836,617,000 quintals to 868,842,000 quintals, in the world's supply, and the Single Numerical Statement rose from 100 to 103.9. Which means that in the countries dealt with the supply of wheat is 3.9 percent larger than last year. This relatively small increase has been sufficient, (the protective tariff notwithstanding) to cause prices to fall 2 lires a quintal in Italy as compared with the prices ruling last year; whereas had the market been a closed one, and had we had to rely exclusively on home production there would have been a rise of from 10 to 15 lire per quintal. This year Russia, Hungary, Roumania, and Bulgaria have saved Italy from famine prices and perhaps from revolution.

Will prices continue at their present level, or will they rise or fall ? The Single Numerical Statement of the International Institute cannot yet reply to this enquiry. It tells us that the wheat harvest in the Northern hemisphere was higher by 3.9% than last year, but it does not yet tell us what the probable harvest in the southern zone will be, when harvested in December and January

next. The most important unknown factor is Argentina, which last year (1909-1910) harvested 35,655,560 quintals of wheat, and the yield of which for 1910-11 is yet unknown. The next Bulletins will probably give us the official forecasts, and then month by month the modifications made in them as the agricultural year advances. The Single Numerical Statement is a factor which is constantly changing, as it has to take into account and keep up with constantly varying conditions as represented by forecasts and actual yields; nor is this a drawback, for economic life is one constant growth, and prices which reflect its status must also be continually on the move. What is important is that the farmer should know where he can look to find the requisite information to guide him in the marketing of his products. With the Single Numerical Statement of the world to guide them, those who are of a speculative turn will wait till a more propitious moment for selling comes, those who do not care to trust to the future will sell at once. With this guide all alike will either wait or sell on the basis not of vague impressions, but of authoritative data, mathematically reduced to the Single Numerical Statement.

The Economic Service of the Institute.

The task of the statistical office of the International Institute is not limited to giving the Single Numerical Statement for wheat. There are other staples of great importance to agriculture for which it must also be given. The Bureau is already doing this for some of the less important cereals such as rye, the summary figure for which in 1910 is 103.3 (showing that the supply is 3.3 % higher than in 1909) barley, with a Single Numerical Statement of 101.4, and oats, the supply of which is summarised by the figure 93.3. Material is being elaborated for giving the Single Numerical Statement for rice and maize; and other staples are awaiting their turn, amongst which I may mention cotton, silk cocoons, and wine. Nor will the task of the Institute be completed when it can give the Single Numerical Statement of production for all these staples. It will then have to undertake the elaboration of the Single Numerical Statements for the other economic phenomena such as stocks in hand, quantities exported, floating cargoes, etc. Sometimes the price

depends not so much on the harvest of the current year, as on the stock remaining over from the previous season. If a series of bad harvests have exhausted the reserve supplies an abundant harvest may barely suffice to refurnish such reserves, in such wise that the residuum remaining over for immediate consumption may only just be normal, and, spite of the abundant harvest, prices may continue to rule high. In other cases stocks in hand may be so considerable that even a failure in the crops may not occasion a perceptible shifting in price.

Nor is this all. An increase, such as that verified in 1910, of 3.9 % in production may fail to cause a fall in prices, if, in the meantime, consumption, especially the number and quality of consumers, has varied. It is known that since the beginning of this new century a gigantic revolution has been going on in the ratio between the production and consumption of wheat. Consumption is extending to countries which till now did not use wheat, and is extending to strata of the population which had hitherto been contented with inferior kinds of cereals. On the other hand some countries, such as the United States, no longer occupy their former position of great exporting countries, whilst others have entered the arena, such as Canada and Asiatic Russia, where the cost of production is different, and probably higher. To reduce all these variable and constantly changing phenomena to mathematical formulae to Single Numerical Statements, to spread this knowledge amongst the farmers, to be the great economic school-master and guide, this is the function the International Institute of Agriculture is to fulfil. After a laborious period of growth the Institute has at last landed on its feet, and from the way in which it has traversed the first difficult stages we are fully justified in expressing the belief that it will triumphantly pursue its path toward economic service to the very end.

Luigi Einaudi

Professor of Political Economy at the University of Turin.